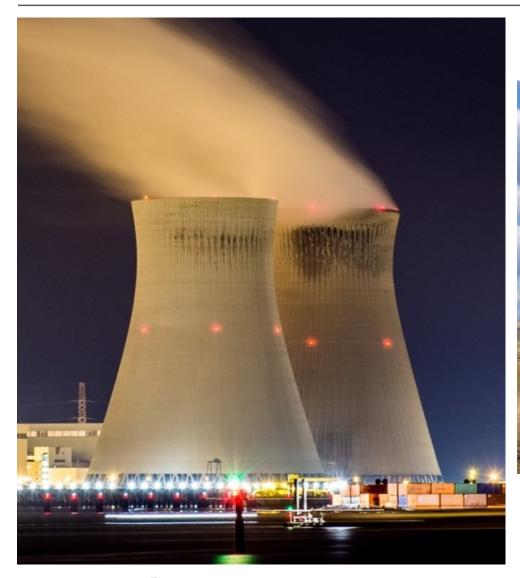


Carbon Removal Goes Nuclear

lan Robinson Ph.D.

Fellow ARPA-E

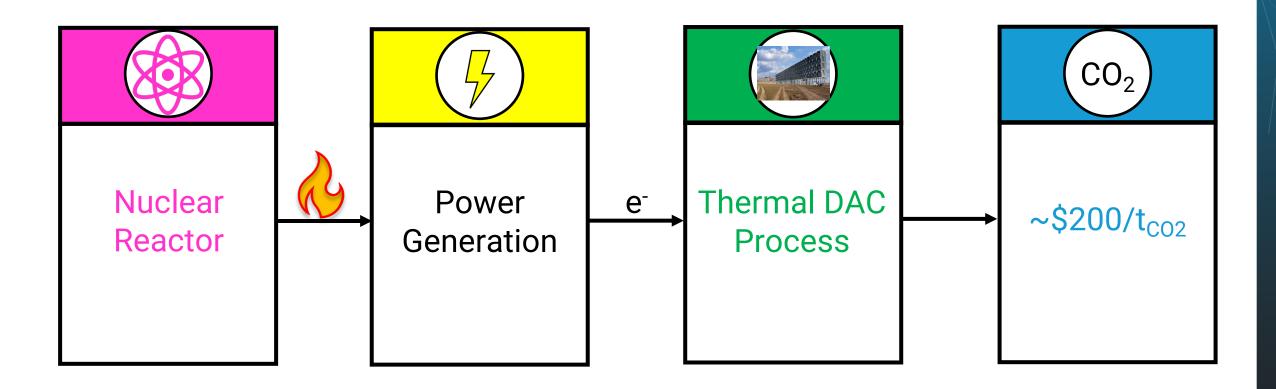
Use Nuclear Energy to Operate DAC





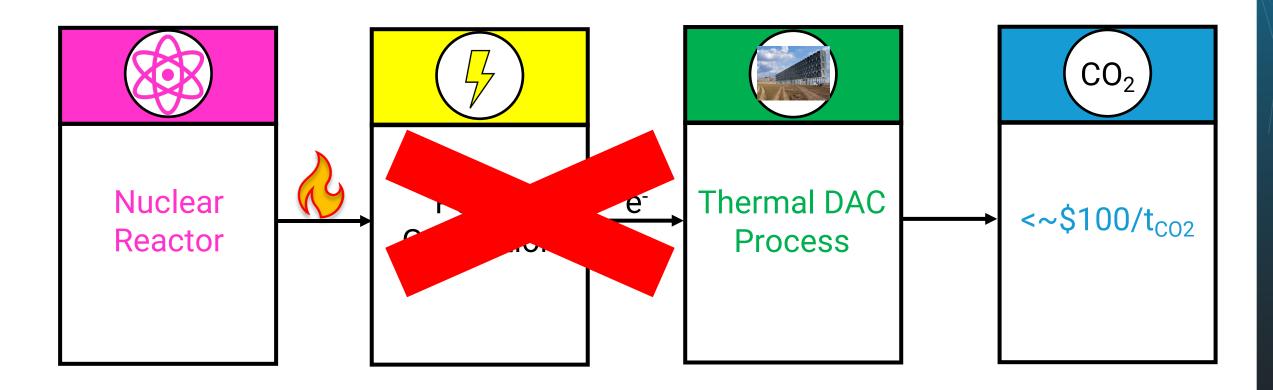


Using Nuclear Electricity to Do DAC is not Innovative



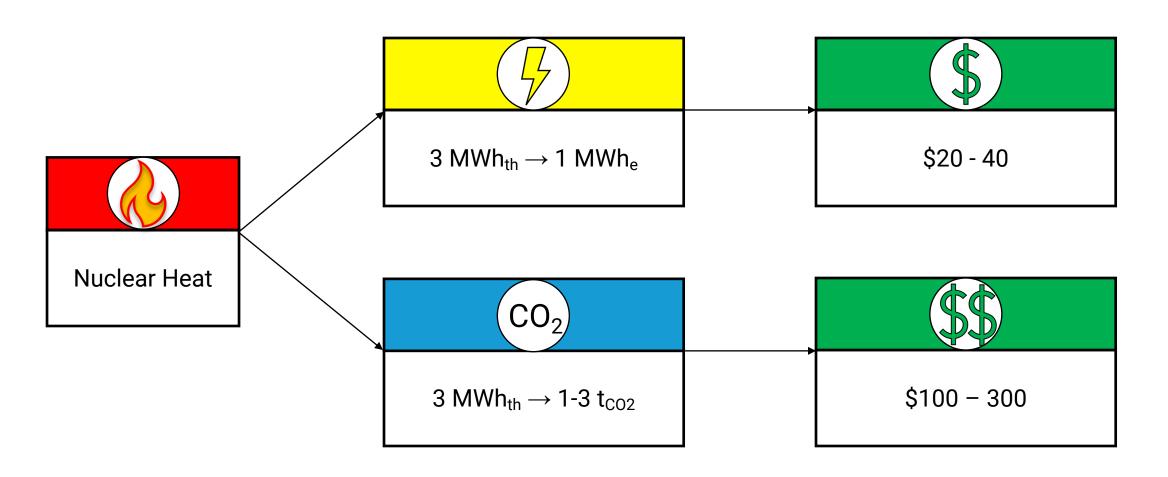


Nuclear Reactions Produce Heat, Use it





Carbon is a Better Revenue Generator than Electricity





A Pathway to $<$100/t_{CO2}$ Exists for DAC

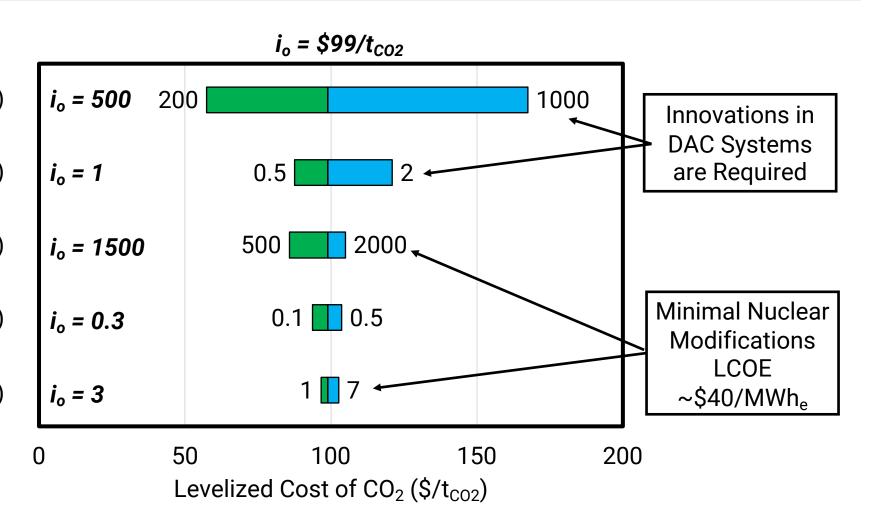
DAC CapEx (\$/t_{CO2}/yr)

DAC Regen Energy (MWh_{th})

Nuclear CapEx (\$/kW_{th})

DAC BOP Energy (MWh_e)

Nuclear O&M (MWh_{th})



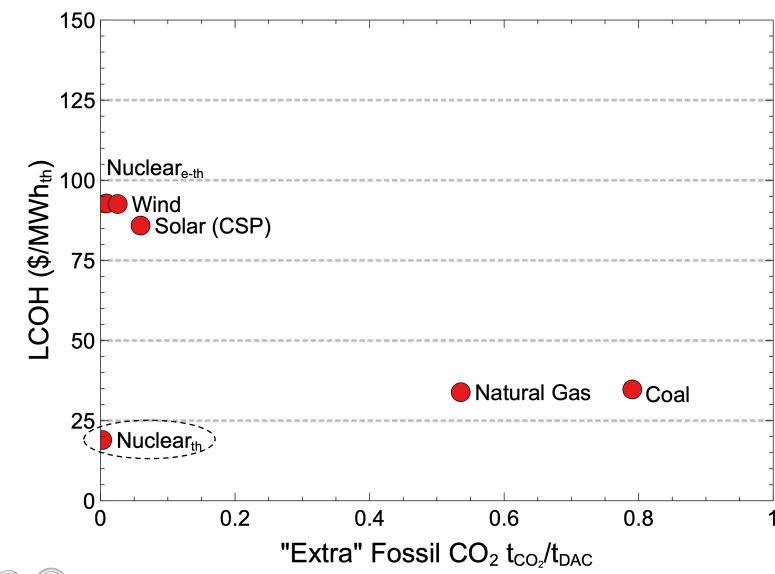
[.] Fasini, M., Etimova, O. & Breyer, C. Techno-economic assessment of CO2 direct air capture plants. Journal of Eleaner Production 224, 957–980 (2019).



Slesinski, D. & Litzelman, S. How Low-Carbon Heat Requirements for Direct Air Capture of CO2 Can Enable the Expansion of Firm Low-Carbon Electricity Generation Resources. Frontiers in Climate 3, 101 (2021).

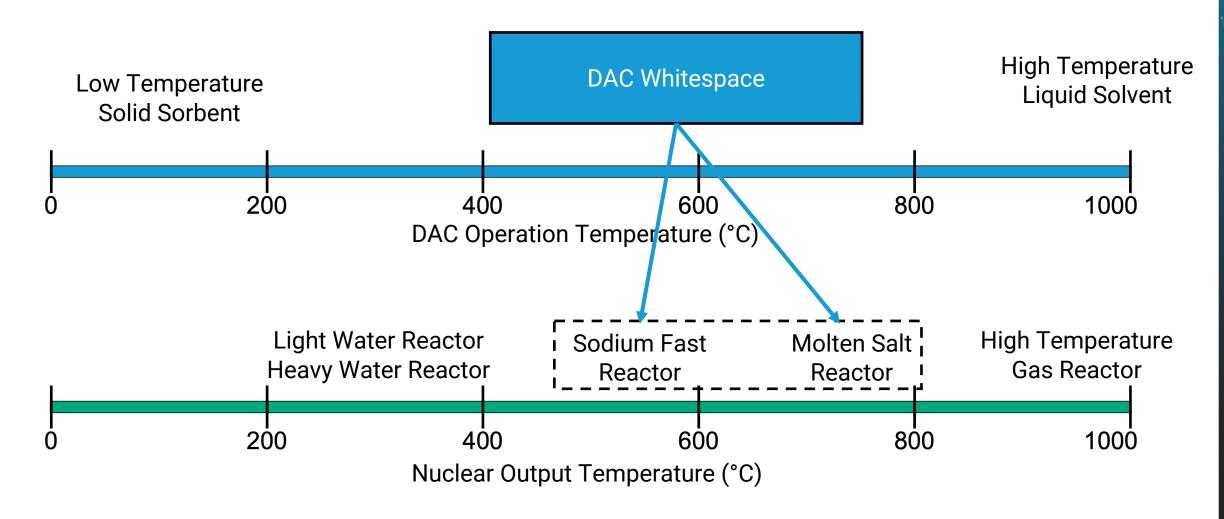
^{3.} https://www.nuscalepower.com/benefits/cost-competiti

Nuclear is the Optimal Low-Carbon Heat Source



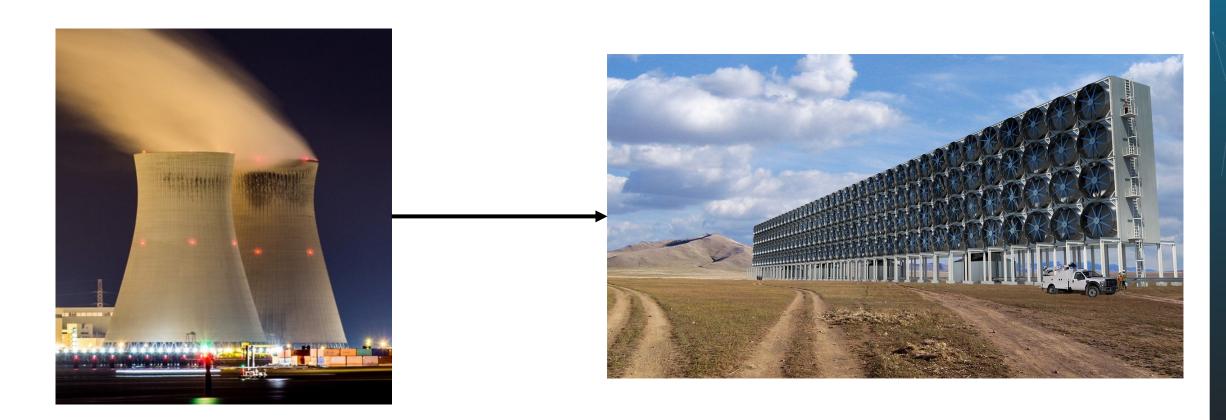


We need DAC Systems that Pair With Advanced Nuclear





We are looking for your feedback!



ian.robinson@hq.doe.gov



- 1. https://www.sciencemag.org/news/2018/06/cost-plunges-capturing-carbon-dioxide-air
- 2. https://www.aviationpros.com/gse/fueling-equipment-accessories/quality-control/article/21153963/soak-testing-ensuring-onspecification-fuel-for-new-and-repaired-fueling-systems